

**FROM MARKETS TO NETWORKS: REFRAMING THE CHALLENGES OF SUSTAINABILITY IN THE UK FRESH FOOD SUPPLY CHAIN**

**ABSTRACT**

The theme of the 31<sup>st</sup> IMP conference is sustainability in B2B relationships and networks. While sustainability can be interpreted in various different ways, two prominent definitions are: ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED., 1987); and, ‘consuming resources at a rate which allows them to be replaced, and only producing pollution at a rate that the environment can assimilate’ (Peattie, 1995:33). Following the work of Elkington (1994) in accounting this is often summarized as the triple bottom-line, or, popularly, as ‘profits, people and planet’. However, not everyone agrees with the implicitly optimistic stance of triple bottom-line advocates, that global capitalism (profits) can be successfully reconciled with social (people) and environmental (planet) progress. For example, Fleming and Jones (2013) argue that corporations continue to act in the interests of a small number of stakeholders (notably, senior managers and equity holders), and so are incapable of delivering outcomes that are beneficial to society as a whole.

The UK fresh food supply chain represents a fascinating context in which to explore the feasibility of reconciling profits, people and planet. This sector is characterized by substantial power imbalances with power asymmetries that favour large supermarkets and their preferred lead suppliers (Hingley, 2005; Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001). As a consequence British food producers come under severe pressure from their customers, not only to deliver ever-greater cost savings but also to absorb market-related risks encountered by the supermarkets. Official analysis of the problems arising from these circumstances is couched in terms of ‘markets’, ‘marketing’ and ‘market failure’ (DEFRA, 2002). This paper investigates how markets, marketing and market failure are understood and interpreted by actors in the UK fresh produce sector, using qualitative data from 21 recently conducted interviews. As well as the tensions between ‘people, planet and profit’, key concepts from prior IMP studies in the food sector are investigated in this context, including retailer dominance, relationship management, parallel networks, and the way that markets are constructed in practice.

**KEYWORDS: Power; Asymmetrical Relationships; Fresh Food; Parallel Networks**

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## INTRODUCTION

*'...it is ideas, not vested interests, which are dangerous for good or evil.'*

(Keynes, 1997:1936, p. 384)

The theme of the 31<sup>st</sup> IMP conference is sustainability in B2B relationships and networks. While sustainability can be interpreted in various different ways, two prominent definitions are: 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED., 1987); and, 'consuming resources at a rate which allows them to be replaced, and only producing pollution at a rate that the environment can assimilate' (Peattie, 1995:33). Following the work of Elkington (1994) in accounting this is often summarized as the triple bottom-line, or, popularly, as 'profits, people and planet'. However, not everyone agrees with the implicitly optimistic stance of triple bottom-line advocates, that global capitalism (profits) can be successfully reconciled with social (people) and environmental (planet) progress. For example, Fleming and Jones (2013) argue that corporations continue to act in the interests of a small number of stakeholders (notably, senior managers and equity holders), and so are incapable of delivering outcomes that are beneficial to society as a whole.

The UK fresh food industry represents a fascinating context in which to explore the feasibility of reconciling profits, people and planet. For example, recently substantial controversy has surrounded the UK fresh milk supply industry, with British farmers claiming that the dominant supermarkets are demanding such low prices that they make UK milk production uneconomic. Over the longer-term, UK vegetable growers have struggled to reconcile their investment needs, the challenges of sustainability, and consistent price pressure from supermarket buyers. The UK food sector is characterized by substantial power imbalances with power asymmetries that favour large supermarkets and their preferred lead suppliers (Hingley, 2005; Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001). As a consequence British food producers come under severe pressure from their customers, not only to deliver ever-greater cost savings but also to absorb market-related risks encountered by the supermarkets. Official analysis of the problems arising from these circumstances is couched in terms of markets, marketing and market processes (DEFRA, 2002). This paper investigates how markets, marketing and market processes are understood and interpreted by actors in the UK vegetable sector, using qualitative data from 21 recently conducted interviews. Inspired by previous IMP research that has investigated relationships and networks in fresh food supply (Abrahamsen & Hakansson, 2012; Hingley, 2005; Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001; Machat, Salle, & Fenneteau, 2004; Skytte, 2010) we ask whether an industrial networks (IMP) conceptualisation of the UK vegetable supply chain might provide more fruitful policy recommendations.

The conceptual framework for the research is presented in the next section. First, to illuminate the issues and demonstrate the currency of the subject matter we briefly discuss the case of the UK milk market in 2015; second, we then identify important concepts from the industrial networks approach that have been used in prior studies of the food sector. Third, we outline the policy context affecting fresh food supply chains. Subsequently, we outline the qualitative methods used to gather data for this study, and then present the findings, organised using the concepts identified during the literature review. The paper concludes by discussing

the contribution arising from this study, and the implications for future research and policy in the food sector.

## CONCEPTUAL FRAMEWORK

### MILK AS A PARABLE FOR OUR TIMES: PROFITS VERSUS PLANET?

In March 2015 the price of milk in leading British supermarkets stood at £0.38/litre, cheaper than most brands of bottled water. While the British public enjoyed their cheap milk, and the British Government basked in the glow of generally low or negative food price inflation, there were some who questioned the sustainability of this state of affairs (Bulman, 2015). Even without being a farmer one can see that a final retail price of £0.38/litre suggests that milk producers must be making nothing, or less than nothing, on what they sell. Everyone knows that cows are large mammals that must eat in order to lactate, and that even the most efficient dairy farmer has to employ some labour and invest in, and maintain, some rather expensive equipment. However, to counteract this sense of unease, a ready story could be found in conventional market economics. As a result of increasing competition among supermarkets, fuelled by some dastardly German market entrants, a food price war had broken out in the UK. Consumer choice, in an economy where average real wages had been in decline for several years, was for cheap, no frills shopping. Supermarkets were responding to this expression of consumer sovereignty. The supermarkets, operating in effect as agents for the sovereign consumer, were pressurising their suppliers to reduce food prices.

The conventional story is that hard-pressed British consumers want cheap milk, supermarkets respond to shoppers' demands by paying less to their milk suppliers, and if British farmers cannot make a profit at that price, then no doubt milk can be imported from somewhere that can. What remains unsaid, but is tacitly understood, is that the British farmers have no realistic alternative. The British retail market for food is heavily concentrated in a few hands; if you cannot sell through the major supermarket chains then all that is left to you are niche routes to market such as farm shops and farmers' markets. The power lies in the hands of the supermarket buyers. The relationships between these buyers and most food suppliers, certainly including those in the milk supply chain, are severely asymmetrical. Indeed, while the situation in the British milk market in March 2015 was perhaps a little extreme, this was not so much evidence of consumer sovereignty as straightforward confirmation that the British food supply network is dominated by a few powerful actors that ruthlessly pursue their own ends regardless of the damage done to the network. Or, indeed, the damage done to animal welfare or the natural environment.

Such competing stories about how markets work, and for whose interests, are not new (Araujo, Finch, & Kjellberg, 2010). In particular, and in contrast to the standard economic market model, those who approach the food market from an industrial networks (IMP) perspective concentrate on the ways in which actors seek to position themselves within the network and to influence network forces for their own purposes (Håkansson & Snehota, 1995).

### STUDIES IN THE FOOD SECTOR USING THE INDUSTRIAL NETWORKS APPROACH

The empirical context for this study is the vegetable distribution system in the UK. The academic dialogue to which this paper seeks to contribute is that concerning the conceptualisation and evolution of distribution systems, with particular reference to food

distribution networks. Gadde (2010) provides a summary of the development of distribution systems theory, and points to the practical and theoretical gaps that became apparent in the field during the twentieth century. In practical terms the negotiation and logistical aspects of distribution became separated into 'marketing' and 'logistics', with the consequence that logistics was seen as a relatively prosaic aspect of business and, erroneously, not as a potential source of competitive advantage. In theoretical terms the systems perspective of Alderson (1965) never gained widespread popularity, and competing approaches based on neo-classical economics, power and conflict, transaction cost economics, and political economy emerged. Gadde (2010:165) contends that the industrial network approach is "an alternative meaningful conceptualisation" that can handle the fragmentation of distribution research, and that "the ARA model used for analysis of industrial networks is a highly relevant framework for the investigation of (complex distribution networks)" (Gadde, 2010:166).

Unsurprisingly, agriculture and the food industry have always been of considerable research interest within the IMP Group. The origins of this research tradition lie in the North-Western countries of Europe where such industries as fresh produce, horticulture, forestry, and fishing are of great economic, historical, social and cultural importance. Furthermore, given both the intrinsic nature of many of these industries – such as their vulnerability to booms and busts as a result of forces in either the physical or the global economic environment - and their frequent politicisation as 'strategic industries', there is a strong sense that conventional (neoclassical) models are not a good description of the way these industries work. Consequently, researchers have often sought to re-conceptualise these 'industries' and 'markets' as industrial networks, and to apply the conceptual tools of relationship and network management to them. This point is well-made by Olsen (2012) in connection with international seafood markets: the fishing industry is subject to "natural stochastic variation and regulatory interferences", and the goal of IMP studies in this field has been to discover "how the real-market-economy actually works 'below the surface' of competitive market images". Indeed, the parallel with the seafood industry can be taken further, since Olsen (2010), commenting on the research papers in a special issue of the IMP Journal devoted to the seafood industry, interprets fish markets "as battlegrounds between historical distribution networks across the world with their traditional market arrangements and power structures on the one hand, and the emerging integrated retail chain to supply chain ... networks on the other." A particularly good example of such parallel networks is the Japanese seafood distribution system (Abrahamsen & Hakansson, 2012). Similarly, the UK fresh produce sector contains parallel, traditional market arrangements, alongside the increasingly dominant integrated supply chain networks headed by major supermarkets.

Wycherley (2000) investigated the UK organic food industry using the concepts of relationship management, the relationship lifecycle, positive and negative effects of network forces, and weak and strong ties in network structures. In Wycherley's (2000) empirical analysis the concept of parallel networks again emerged: the conventional network and the pioneer network. The conventional network comprises actors that do not trade in organic produce at all ('pure conventional') and actors that are of non-organic origin but are incorporating organic lines ('hybrid conventional'). The pioneer network comprises 'hybrid pioneers' and 'pure pioneers'. Important differences were found between the pioneer network and the conventional network. The pioneer network is largely built on close personal relationships, and driven by an idealistic belief in the value of organic products. The conventional network is built on more conventional business relationships, where organic is seen as simply a rapidly growing niche market, and the primary motivation is the search for profitable business opportunities.

Hingley and Lindgreen (2001) researched both the UK fresh produce industry and the New Zealand wine industry. In the UK they studied 17 fresh produce supplier case studies using a qualitative, inductive method. Power/dependency and retailer dominance were found to be important characteristics of this industry, and there was evidence that partnership approaches to sourcing espoused by major retailers lacked sincerity. Social exchange between suppliers and customers was limited to professional circumstances, and tangible relationship commitment, for example in terms of dedicated investments in the relationships, was one-way (from the supplier) rather than mutual. Although becoming a “preferred supplier” to a major retailer could lead to rapid sales growth, it also led to reduced profit margins (Hingley & Lindgreen, 2001). One respondent in this study said: “A partnership between a supplier and a multiple retailer is like a ballerina dancing with a bear”. Regarding the nature of supplier-customer relationships in this sector, Hingley & Lindgreen (2001:20) conclude that there is “widespread criticism of ‘partnership’/‘relationship’ terms as lacking substance and a PR gimmick”. Continuing this line of argument, Hingley (2005) contended that key characteristics of the UK fresh produce supply industry are power imbalances, retailers striving to reduce the number of suppliers with whom they deal directly, leading to the appointment of ‘super-middlemen’ who act as network supply coordinators on behalf of the retailers. Many suppliers had opted for preferred relationships with a single retailer, but had given up their right to price negotiation (that is, had become price takers), in return. Hingley (2005:4) asserts that competition in the UK food industry is best conceptualised as competition between managed industrial networks, with a major retailer at the centre of each network, and super-middlemen acting as network coordinators within each network.

While many researchers have reported on the economic dependency of small food suppliers on large buyers (whether intermediaries or retailers), Machat et al (2004) drew attention to the potential negative impact of buyer-domination on the organisational learning achieved by small suppliers. So, in addition to economic dependency, Machat et al (2004:20) commented on: “a cognitive dependency revealed by (this) competency trap”. Their empirical study of 131 French SME food suppliers found that market-based organisational learning was impaired where suppliers entered into exclusive supply contracts, resulting in a ‘competency trap’ where the supplier became progressively less capable of responding to changing market conditions.

**Table 1: Principal Concepts**

<b>Concept</b>	<b>Source</b>
<b>Retailer dominance</b> (retailer managed networks)	(Hingley, 2005; Hingley & Lindgreen, 2001)
<b>How the real-market-economy actually works ‘below the surface’</b> (in contrast to the competitive markets narrative)	(Araujo et al., 2010; Olsen, 2012)
<b>Parallel networks</b> (two or more distribution networks operating largely in parallel with limited inter-network interaction)	(Abrahamsen & Hakansson, 2012; Olsen, 2012; Wycherley, 2000)
<b>Managing Relationships</b> (relationship management processes)	(Hingley, 2005; Munksgaard, 2008)
<b>Profit versus planet?</b> (economic sustainability and environmental sustainability)	(Elkington, 1998; Peattie, 1995)

Using an in-depth case study conducted within the Danish food industry, Munksgaard (2008) investigated relationship-specific adaptations and inter-organisational product development routines. This study explored the relationship between a focal supplier and two major customers: a large retailer, and a food products manufacturer. For both customers the product development process involved extensive collaboration and joint development meetings, with the supplier being regarded as a member of the product development team by the customers. The supplier developed new products and new supporting services – that is, engaged in substantial relationship-specific adaptations – for both customers (Munksgaard, 2008). Another study in the Danish food industry found that “there is complementarity between the constructed identity of producers and retailers ... the producers take their starting point at the farmers, when they construct their meanings, and the retailers begin with their constructed understanding of consumer trends” (Skytte, 2010).

Table 1 provides a summary of the key theoretical concepts derived from the review of the literature and used in the analysis of the empirical data for this study.

#### THE POLICY CONTEXT

In the wake of various crises in British farming the *Policy Commission on the Future of Farming and Food* was set up in 2001. Its report, which became known as The Curry Report, marked a watershed in agricultural policy because it engaged with sustainability and turned to the market for solutions to the problems in farming ("Farming and Food: A Sustainable Future, Report of the Policy Commission on the Future of Farming and Food," 2002). Its fundamental ideas remain the basis of agricultural policy in Britain today. It encouraged farmers to adopt more sustainable methods of production, and to look to the market to address the challenges that confront the sector. An analytical framework for understanding policy is suggested by Howlett and Ramesh (2003). Their framework explores three core issues: the scope of policy; the policy instruments employed; and, the distributional outcomes as a ‘conceptual torch’ (Greer, 2005:12) to illuminate the development of policy. In terms of the scope of the policy, a shift was apparent from a narrow focus on farming to a broader perspective of farming as part of the food supply chain, an activity in the globalised buyer-dominated commodity supply chains (Gereffi & Korzeniewicz, 1994). A shift in scope was also apparent in the attempt to include sustainability in the policy discourse on farming and food. These changes were reflected in the replacement of the Ministry of Agriculture Fisheries and Food with the Department for the Environment, Food and Rural Affairs. The Curry Report recommended policy instruments designed to help farmers reconnect with their markets and the natural environment. As a result several initiatives were adopted or in some cases revitalised. These included stewardship schemes, the Food Chain Centre, Producer Organisations, Assured Produce, the Grocery Supply Code of Practice and the Grocery Code Adjudicator, English Food and Farming Partnership, and support for farmers’ markets. The empirical work presented here was focused on the distributional outcomes of a policy of reconnection (to markets and the natural environment) that affected vegetable production in England.

## RESEARCH METHODS

Our empirical study focused on the English vegetable sector and explored the distributional outcomes of a policy of reconnection and how markets, marketing, market processes and sustainability are understood and interpreted by actors in the sector, using qualitative data from 23 key informant participants in 21 interviews. The interviews explored the following issues: market failure or failure to market? And, sustainable production.

### MARKET FAILURE OR FAILURE TO MARKET?

The problem for farming was framed in policy documents as a failure to market. Thus the implied solution was 'better marketing'. The study asked farmers about their efforts to become more competitive and market oriented. It examined the impact of policy interventions such as Producer Organisations and Assured Produce (Red Tractor). We explored how growers engaged in marketing in retailer dominated networks and explored how 'the real market economy works below the surface' (Table 1).

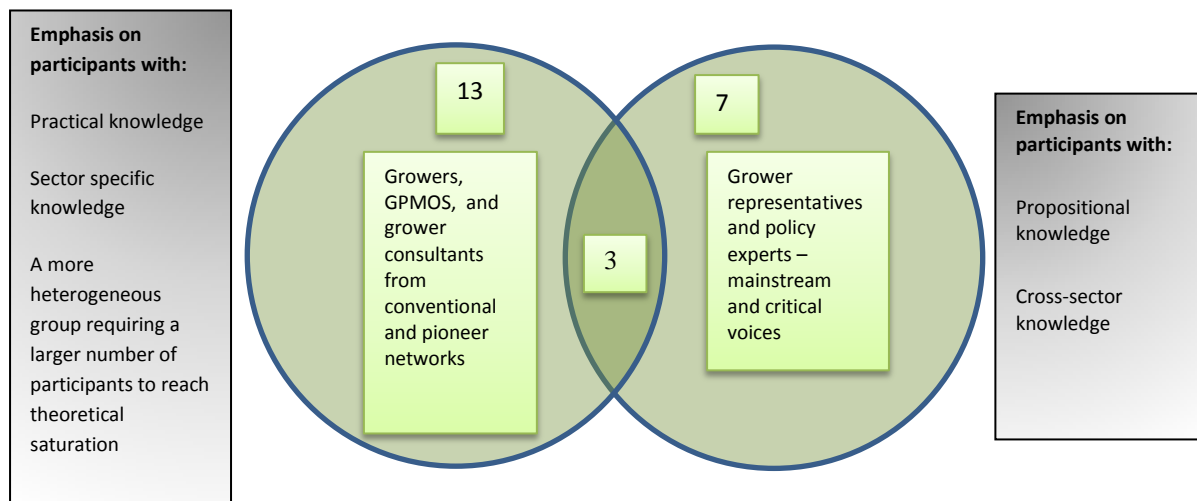
But had problems in the vegetable supply chain arisen because of structural problems in the supply chain (i.e. market failure rather than failure to market)? A substantive analysis that explored evidence of market failure in participants' accounts was constructed using a framework of market failure drawn from the Fair Trade movement (Nicholls & Opal, 2005) and the European Commission's principles of good practice for a better functioning supply chain ("Vertical Relationships in the Food Supply Chain: Principles of Good Practice," 2011). In network terms we explored respondents' accounts of the management of relationships within the parallel networks of conventional and pioneer production (Table 1).

### SUSTAINABLE PRODUCTION

In the wake of various crises in farming The Curry Report recommended a reconnection to the natural environment with a food and farming policy that engaged with sustainability. Since this was the first attempt by the UK government to bring sustainability into the policy discourse, structural issues concerning how different participants conceptualised environmental sustainability were a particular focus for the analysis.

Figure 1 provides a summary of the interview participants.

Figure 1: Pictorial Summary of Key Informant Participants



Some participants represented more than one group within the study. For example, one individual was a key policy expert having been a member of the *Policy Commission on the Future of Farming and Food*, but was also a grower and had been active as a representative at a senior level in a grower representative organisation. Fifteen of the participants were linked to the larger conventional network, six were involved in the much smaller pioneer network, and two had links to both pioneer and conventional networks.

Defining the scope of the study was problematic given the heterogeneous nature of the vegetable sector. Agriculture policy and data usually group fruit and vegetable crops together, although a few crops were sometimes treated separately (for example, potatoes, and mushrooms) (DEFRA, 2014a). The Horticultural Development Company (HDC) classifies horticulture products into eight major categories; vegetables are divided into protected edibles and field vegetables, and fruit is divided into soft fruit and tree fruit (Horticultural Development Company, 2015). Most of the fruit consumed in England is imported, whereas most of the vegetables consumed are home grown ("Basic Horticulture Statistics 2014", 2014). Vegetable production is diverse – see appendix 1 for summary data on vegetable supply. Growers are involved production across protected and field environments in conventional or pioneer networks and some growers are also involved in a range of supply chain activities. For example, in the conventional sector, there are a few large grower/packer/marketing organisations (GPMOs) that are involved in vegetable production, packaging, storage, transportation and marketing of both English and overseas produce. Domestic vegetable production is likely to play an important part in the development of a sustainable agriculture policy, potentially capable of achieving economic, environmental, social/health and animal welfare goals.

The growers' perspectives take centre stage in the study but we also sought the views of grower representatives, many of whom were or had been growers themselves or grower consultants, and policy experts such as the horticulture specialists at Defra, who were able to provide cross-sector insights. A list of crop associations was obtained from the HDC website [<http://www.hdc.org.uk>] and interviews were obtained with several crop representatives who then recommended suitable growers to approach. In addition, other potential participants

were identified by contacts at City University's Centre for Food Policy. The Centre suggested particular growers from the conventional and pioneer networks to approach to participate in the study. Most vegetable production, especially in the conventional network, is based in Eastern and South East England and the sample reflects this geographical bias; however, some pioneer producers based in the south west of England were included in the study. In total almost 90 organisations and individuals were invited to take part in the study.

The appendix provides further information about the participants involved in the study. Interviews took place at the participants' farms or sometimes by phone or at (or nearby) a convenient university location. Most of the interviews were between 45 and 90 minutes, although some of the interviews on farm sites occurred over a longer period of time because growers would take time to show farm production and processing facilities.

NVivo was used to code the transcripts of the interviews. The results from the study were triangulated with documentary analysis of key policy papers.

## FINDINGS

### RETAILER DOMINANCE

There is a great deal of agreement that there is a problem concerning margins for growers, particularly in the supermarket dominated supply networks:

*'One of the major problems that growers face, without any doubt at all, is lack of margin [...], caused by fierce price competition between the supermarkets. [...] in the last five years we've seen three very major companies go out of the industry [...], Because they can't make profit.'*

*Quote from grower consultant (Con01).*

The same consultant suggested that grower businesses were efficient but that they were subject to price pressure from the supermarkets. The price pressure limited the extent to which growers can reinvest. He gave the example of a salad producer having to accept over-riders, a post-sales reduction of the unit price, from supermarkets:

*what does the grower do? Does he say, "No, you can't have it," if he does that, he will no longer supply that supermarket, he will no longer have a business. So it is commercial blackmail, [...] So one of the problems is that growers, although they have been able to very often stay in business, they haven't been able to make enough profit for capital reinvestment...'*

*Quote from grower consultant (Con01).*

*'In essence what we've got now is a smallish group of sellers [...] who are fighting over market share. Retailers who are sitting there, very happy knowing the government would like them to manage inflation, and that they've got sellers desperate for orders, volume. And so all that's happening is prices are being negotiated down and down and down and that blows out the back end to the fellows who are growing the product who are getting a lower and lower return.'*

*Quote from grower representative (Rep04)*

He felt that there needed to be a different way of sharing the risks and rewards along the supply chain. He pointed to the problem that the retailers were able to appropriate a large proportion of the value created regardless of variations in supply or other problems:

*'...I think that whole circle needs to be reconnected, rewired in a way which there is a better balance. So the retailers don't continuously take 50% margin.'*

*Quote from grower representative (Rep04)*

There was a belief in the effectiveness of markets across both the conventional and pioneer networks often accompanied by a concern that somehow the present arrangements were not always fair. A key issue was retailer dominance and the ability of the large retail multiples to appropriate a large share of the value created in the supply network.

#### HOW THE REAL-MARKET-ECONOMY ACTUALLY WORKS 'BELOW THE SURFACE'

One grower consultant (Con01) highlighted the perishable quality of the produce as a critical issue. Produce cannot be stored until prices improve. He also mentioned the problem for a supplier that has agreed to provide all year round supply to supermarkets. If there are problems with supply the grower has to find alternative suppliers even when these are expensive. Price is often the only way a supplier keeps a contract to supply a supermarket.

*'And if somebody says to you, "We don't want your lettuce this week," what are you going to do with, you know, half a million lettuce? [...] So it's a perishable product, they've got to do it [accept a price below the cost of production].'*

*Quote from grower consultant (Con01)*

One crop representative (Rep01) felt that some buyer organisations were advocating fair trade for overseas suppliers but seemed to be unconcerned about the problems facing domestic growers of vegetables. He gave the example of the Co-Op:

*'...it was recently an issue with milk and the Co-Op but it's true of fresh produce supplied to the Co-Op, you know, there has to be a recognition in companies who expound their credentials of being the biggest fair trade organisation in Britain [inaudible] fair trade are not to apply the same fair trade principles to British suppliers seems perverse now.'*

*Quote from grower representative (Rep01)*

One grower consultant highlighted the structural problems associated with growing vegetables. Scale was required to ensure low unit costs but scale locked a grower into the retailer supply network since only about 15% of vegetables go through alternative networks. The same consultant also asserted that innovation (such as extending the growing season) in domestic production was being stifled, possibly because the large GPMOs had different investment priorities and could turn to overseas suppliers as an alternative.

*'...this whole dynamic of being able to develop new crops, new months of production in this country which nobody is picking up...'*

*Quote from grower consultant (Con04)*

He also felt that producers were not able to achieve prices that covered the cost of production:

*'They don't want any grant money for the tunnels, for the marketing, for the feasibility study, they don't want that, but what they say is, "We're not investing in this crop and getting three pound a chip when we need five pound a chip, we are not going to sell this below what it cost us."'*

*Quote from grower consultant (Con04)*

## PARALLEL NETWORKS

The dominance of the supermarket supply chain meant that alternative networks had retreated to the margins of vegetable supply:

*So what have we got left? We've got box schemes, we've got farmers' markets, we've got a few little local markets might happen every Saturday and so on...'*

*Quote from grower consultant (Con04)*

A young innovative grower avoided the supermarket supply network (Gr05), citing low prices as the reason for moving out of the mainstream retail supply network. Instead he developed a successful grower business by supplying specialist produce to Chinese restaurants.

The organic farmers that did have alternative routes to market in the pioneer network discussed the quality of the relationship they have with their end customers.

*'...given the densities of people in London and the distribution of markets that..., potentially lots and lots people and you do get a wide variety of people to try and you get all sorts of characters young lads who you wouldn't think are very keen to try new kinds of vegetable because it does mean something to them. They really notice the difference and it's exposing people to it.'*

*Quote from organic grower (Gr02)*

He went on to say:

*'I think people are scared that farmers' markets are dear when they're not really now but it's just getting people to trust it because they get ridiculed [...] The media has put it forward that they're expensive and a rip off...'*

*Quote from organic grower (Gr02)*

A small organic grower said of his strategy of running a market stall:

*'And having that direct link with the customer. It gives us a chance [...] We can talk to people and find out what they want, what they like and what they don't like.'*

*Quote from organic grower (Gr03)*

Farmers' markets are important in the pioneer network

*Farmers' markets are great and I think they're a fantastic starting point for a business.*

*Quote from organic grower (Gr04)*

There are few alternative routes to market for many growers apart from the retail multiples.

This is acknowledged by one policy expert:

*'... then you get into very complex arrangements of ownership of land, renting of fields, etc. as part of that rotation because the kind of person who would produce carrots would have specialised equipment for it, so not everyone will grow carrots because you're going to need to be able to harvest them... And you're also going to need your connections, all the way down the supply chain, to get them in the grocery store... so, that whole side of it is, I suspect it might be a barrier to entry as well, that if you decided that you wanted to grow some carrots, you would have trouble selling them.'*

*Quote from policy expert (Pol02)*

#### MANAGING RELATIONSHIPS

Most growers, from both the conventional and pioneer networks, had little positive to say about contracts as a mechanism for managing relationships.

*'There's no contract, it's just an intention to supply I think. There's nothing written there are very, very few written contracts in this business....'*

*Quote from conventional grower (Gr06)*

Growers felt the success of their business depended on whether they obtained the consent of a supermarket buyer.

*'Effectively, you're relying on the good grace of a supermarket buyer...'*

*Quote from grower representative (Rep03)*

From an industrial networks perspective contracts are perceived as relevant only when relationships fail. This point is echoed by a medium-sized but successful grower who perceived contracts were ineffective as a regulatory mechanism between firms in a supply network:

*'At the end of the day, it's very rare that anyone sticks to the contracts, you know, there will be a certain element of tonnage and price but in a difficult season, you know, they can be worthless at the end of the day...'*

*Quote from conventional grower (Gr01)*

And there was a view that the protection that a contract provides to growers was largely illusory. A grower representative stated:

*'...the contracts that we've seen from some supermarkets to some growers have been daily contracts that, if they [the growers] get one thing wrong they'll [the supermarkets] terminate the contract, [...] frankly, the supermarket buyers have too much power. There is a clear fear factor within the vegetable sector...'*

*Quote from grower representative (Rep03)*

The retailers controlled the enforcement of contracts (or not), effectively a system of private governance of the supply chain.

*'We think a lot about being able to guarantee supply yes. We do because we will lose the business if we fail on the supply to our retailers [...] they will try to spread the risk by giving it to somebody on a different land or soil type and then you'll see 20% of your business go away that way. And by the second year you'll see 60% of it go away and you'll lose it all perhaps.'*

*Quote from conventional grower (Gr06)*

So it would appear that reifying relationships in the form of a contract may not be an effective way to address power asymmetry in the vegetable supply network. One participant was concerned that the government's willingness to address problems related to power asymmetry is muted.

*'Well no, if you look at it, it's taken the government, oh God knows, 15 years to have a, an adjudicator. She isn't even an ombudsman. She's merely an adjudicator, we have no legal framework to protect growers.'*

*Quote from grower representative (Rep03)*

And contracts were seen as a double-edged sword

*'Contracts, any contract worth its salt says 'you've got to provide A at price all of the time and if you can't do that all of the time then you've got to go and get it, and nine times out of ten when you've got to go and get it, it's going to be a lot more than the price that was agreed.'*

*Quote from grower representative (Rep04)*

*'Well, you'd be quite nervous about signing contracts because of the variability of the yields.'*

*Quote from grower (Gr06)*

The GPMOs had a different view of contracts from other grower organisations in the conventional network. Their views were more closely aligned to the retailers' perspective. They saw contracts as fair, and if a farmer failed to produce to the quality standard then the buyer (the GPMO) was under no obligation to fulfil the contract. A key issue was quality specification, which allowed the buyer, whether the retailer or the GPMO, a legitimate reason for rejecting produce.

*'So if the farmer produces it and he gets a disease problem or a pest problem he will, you know, he will fall out of contract and, you know, the retailers **or we** [my emphasis] would have no rights or reason to take it.'*

*Quote from large grower-packer MO manager (GP02)*

A policy expert expressed concern about the long term implications:

*We're also getting to the point where Asda has no one to buy carrots from ...*

*Quote from policy expert (Pol02)*

The GPMOs are gatekeepers to large retail markets. The GPMOs have effectively integrated downstream in the supply chain, taking on more of the intermediary functions that were once performed by the retailer. A system of market based, arms' length relationships between

growers and intermediaries has been replaced with longer term arrangements and co-ordinated interactions within a network controlled by retail multiples and the GPMOs. The GPMOs continue to exercise control upstream through contractual/programme arrangements with individual growers, and through joint ventures into production at home and overseas.

The pioneer networks were more concerned to continue to obtain the capabilities and resources of growers:

*you know, there has to be a bit of give and take [...] especially when you're dealing with the soil and the weather [...] you have to know enough to know when the person is taking the piss really and when they're, or whether there's someone that you need to support [...] with this year, you know, we'll be working very hard to try and return whatever we can to our growers because I really want them to be there next year...*

*Quote from organic grower (Gr04)*

#### PROFIT VERSUS PLANET?

The conventional network tended to see sustainable production in terms of incremental improvements in productivity. For example, growers in the conventional network had responded to policy initiatives that encouraged the development and use of alternatives to fossil fuel energy such as anaerobic digestion facilities, although one manager in a GPMO claimed a focus on renewables was diverting growers from the real issue of growing crops.

*So you know, it's taking, it's robbing Peter to pay Paul a little bit. Growers have only got so much money to invest so if they're putting it into solar [...] it has its benefits but, it's also, I think it's negative. We [should be] putting all our capital into growing this business and producing more rather than actually into those sort of additional income generation projects.*

*Quote from GPMO manager (GP01)*

The pioneer network generally talked of sustainability in terms of transformation of the whole system of production and consumption of food:

*'Now all of that fits really well because we're eating too much meat, we ought to be eating lots of beans because beans are ever so good for us, beans need to go back in the rotation and so on ... Now, somehow in order to change the whole agricultural dynamic and for that read in this case fruit and veg, we have to convince people [i.e. growers] that there is a market for crops, we have to convince people, the growers, to invest in those production systems and make it happen.'*

*Quote from grower consultant (Con04)*

**Table 2: Summary of the results**

Characteristic	Summary	Indicative quotes
Retailer dominance	Margins low for medium sized growers especially in the supermarket supply network, caused by high input costs and supermarket pressure on farm gate prices, growers exiting the retail market, but longer term the remaining larger growers see positive demand and supply changes	'...they [the supermarkets] were going to put me out of business...' (Gr04)
How the real-market-economy works	<p>Growers claim that they are not achieving prices that enable them to cover costs of production and invest in the replacement of their capital assets. The prices they achieve mean that they are certainly unable to invest in business expansion or new product development.</p> <p>In terms of conventional neoclassical economics, and according to the interviewees, the market mechanism is failing since producers are not receiving the long-run marginal cost of production (that is, short-run production costs plus sufficient contribution margin to fund long-term investment and a normal rate of profit).</p>	<p>'And if somebody says to you, "We don't want your lettuce this week," what are you going to do with, you know, half a million lettuce? [...] So it's a perishable product, they've got to do it [accept a price below the cost of production].'</p> <p>(Con01)</p> <p>'They don't want any grant money for the tunnels, for the marketing, for the feasibility study, they don't want that, but what they say is, "We're not investing in this crop and getting three pound a chip when we need five pound a chip, we are not going to sell this below what it cost us."' (Con04)</p>
Managing Relationships	<p>Growers wary of written contracts because enforcement of contracts shaped by the retail multiples or MO buyers</p> <p>Contracts a double edged sword used by supermarkets to secure year round supply.</p> <p>More contract production/block cropping – growers rent out land to large scale contract producers. More land required for rotation by MOs and growers keep their valuable land assets.</p>	<p>'...there are very, very few written contracts in this business....' (Gr06)</p> <p>'...we have no legal framework to protect growers.'(Rep03)</p> <p>'Rotation means that you need six times the amount of land to grow a crop long term. So large packer growers will tend to rent land rather than own it' (Rep06)</p>
Parallel Networks	<p>Access to consumer markets largely controlled by the retail multiples and the MOs that act as their focal suppliers.</p> <p>Growers with access to alternative markets are able to understand customer requirements and meet their customers' needs.</p> <p>Policy plans to develop alternative routes to market have not been implemented</p>	<p>'I suspect it might be a barrier to entry as well, that if you decided that you wanted to grow some carrots, you would have trouble selling them.'(Pol02)</p> <p>'... having that direct link with the customer. It gives us a chance.... We can talk to people and find out what they want...' (Gr03)</p>
Profit versus Planet?	<p>Integrated farm management is commonplace, as is more crop rotation</p> <p>Investment in renewable energy may be diverting resources from investment in sustainable production</p>	<p>'So there's this whole dynamic of being able to develop new crops, new months of production in this country which nobody is picking up, or very few people are picking up' (Con04)</p>

## CONCLUSION AND IMPLICATIONS

### CONCLUSION

Table 2 provides a summary of the results from the empirical study organised using the conceptual framework provided in Table 1. This study indicates that the dominance of the major supermarkets over the UK fresh food production sector found in prior studies by Hingley and colleagues remains a key feature of the sector; power asymmetries are at least as significant as they were when these earlier studies were reported (Hingley, 2005; Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001). There is evidence that the way that the ‘real market economy’ works in practice in this sector (Olsen, 2012) is as competing managed networks with a major supermarket at the hub of each network and, collectively, supermarkets in almost complete control of the most important routes to market. While parallel networks do exist in this sector (Abrahamsen & Hakansson, 2012; Olsen, 2012) the alternative routes to market, such as farmers’ markets, account for a small proportion of trade and are not a viable alternative for large-scale producers in the conventional network. As a consequence of the network structure and supermarket dominance, relationship management in the sector seems to be fairly rudimentary. The actors in the networks understand that the exercise of supermarket power, whether implicit or explicit, is the central factor in relationship management. Formal contracts seem to play a relatively unimportant role in the sector. While vegetable producers appear willing and even enthusiastic about investing in sustainable production, the evidence from this study is that the price pressures exerted by the supermarkets reduce margins to such an extent that investment in sustainable practices becomes difficult or impossible. Growers are focusing their efforts for more sustainable production on sustainable solutions that also yield economic benefits. Renewable energy, low input production models (such as integrated plant management) may have cost benefits for farmers. But environmental solutions that affect the already low margins that growers experience will be difficult or impossible to implement.

Vegetables are likely to play an important role in food production and consumption that is sustainable economically, socially (that is, in health and animal welfare terms) and environmentally. In the context of globalised trade and increased global demand, sustainability in food supply chains is challenging because there are tensions between food supply efficiency (low prices) and resilience (secure supply). This paper has focused on the sustainability in economic terms of the English vegetable sector. Policy solutions aimed at supporting English vegetable producers have focused on: better (consumer) marketing (e.g. branding, adding value through the Assured Produce/Red Tractor scheme); access to alternative routes to markets (e.g. farmers’ markets); codes of practice for contractual arrangements (the GSCOP and GCA); and incentives for farmers to consolidate by forming producer organisations (POs). For domestic vegetable producers these solutions are suboptimal because they are based on an inadequate conceptualisation of the reality facing growers. So, for example, there has been a lower than expected uptake of PO status, despite its links to EU funding for growers, because it was difficult for growers to disentangle from existing networks with retailers. Codes of practice do not protect growers from retailers embroiled in price wars whose power over suppliers is beyond the terms in a contract. Farmers’ markets are useful but don’t enable access to the majority of consumers for whom accessibility is as important as provenance. Consumers’ preferences are also embedded in a

network of lifestyle ties. Policy makers have conceptualised retailers as simply agents of atomised utility maximising consumers and have depended on retailer- controlled private governance of the food supply chain to enforce quality and hygiene standards and low prices.

#### RESEARCH & POLICY IMPLICATIONS

The research and policy implications derived from our study are summarised in Table 3, and discussed below.

**Table 3: Alternative Conceptualisations of Problems and Solutions for Economically and Environmentally Sustainable Vegetable Supply**

	An orthodox vision of a market-based economy	A heterodox vision of sustainable supply networks
<b>Policy goals</b>	Hunt's policy goals: Productivity Economic growth Wealth Creation (Hunt, 2000)  Dynamic disequilibrium of markets drives innovation and better ways of satisfying consumers	Goals for sustainability: Efficient resource use Prosperity and stability (Jackson, 2009) Well-being  To maintain the dynamic conditions for dynamic ecological equilibrium (Alderson in Cox, Alderson, & Shaprio, 1964, p. ch 6)
<b>Theoretical frameworks</b>	Economic theory, orthodox conceptualisations of markets	Cultural ecology (ibid), heterodox ideas of networks
<b>Problem to be addressed</b>	Economic demise - an inability to compete in global markets	Ecological disequilibrium – resources depleted by destructive technologies
<b>State model</b>	The Competition State (Cerny & Evans, 2004)	A Networked Ecological Model for the State?
<b>Policy solutions based on</b>	Competitive, free markets  Sustainable intensification of global commodity supply chains	Networks  Institutional and structural change
<b>Food supply priority</b>	Efficiency and consolidation	Resilience and diversity
<b>Nature of the change envisaged</b>	Incremental	Transformative
<b>Models of production</b>	Mainly conventional production, some organic production as value-added produce	Conventional and organic production
<b>R&amp;D</b>	Focused on mechanisation and bio-tech developments, high tech	Focused on the adaptation of natural ecological systems, low and high tech
<b>Desired output</b>	Cheap, plentiful produce, low input, low carbon, maximum production	Healthy food, healthy soil, sufficient production

Using orthodox marketing ideas, economic sustainability is framed in terms of individual enterprises and individual consumers in markets. One example of an orthodox explanation of markets is Hunt's theory of competition (Hunt, 2000, 2013). Hunt argues that policy should focus on productivity, wealth creation and economic growth to appropriate the benefits for society that markets yield. In the context of food and farming policy this was achieved through policy interventions based on reducing costs, adding value, and/or diversification of the business enterprise to achieve superior financial performance (or exit the market). Survival is framed in purely economic terms for the individual enterprise so that a firm seeks to survive by striving for superior financial performance relative to its competitors.

Heterodox ideas from industrial marketing scholars, particularly those associated with the IMP Group, conceptualise the UK fresh produce supply chain as a network rather than a market. The strategic focus becomes the network rather than the individual enterprise. This does not imply network survival at all costs. As in orthodox strategic thinking, one option is the disbandment of the entity should alternative strategies fail to be feasible. A network perspective does mean, however, that options that enhance the position of the individual firm but which jeopardise the network as a whole are not seen as effective long term strategies.

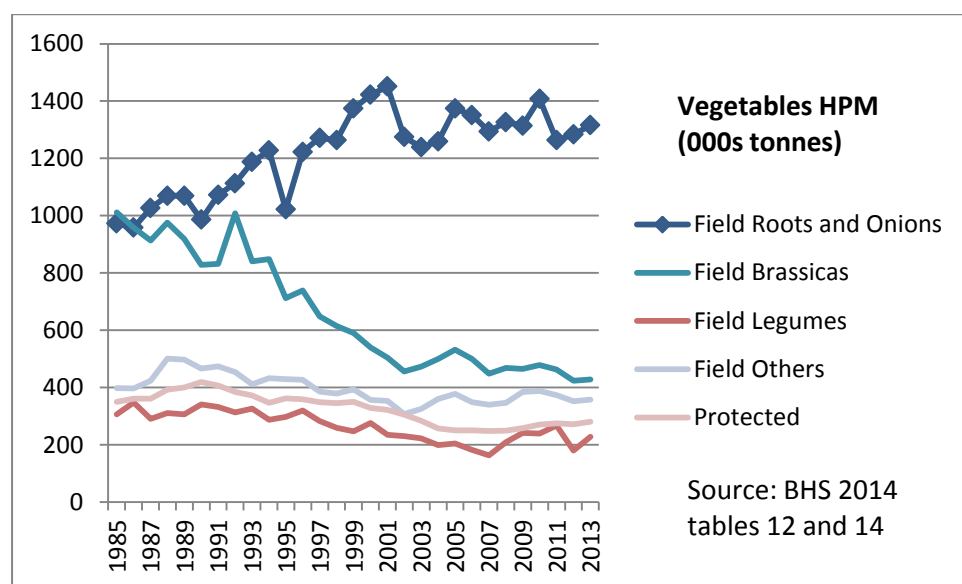
Sustainability is concerned with not just the individual firm or even a particular network (however defined) but its frame of reference is the wider/natural/world environment in which all economic, social and ecological networks take place. Consequently, solutions that work for a particular subset of the whole network may not always be consistent with truly sustainable solutions. A viable network for fresh milk production (a resource intensive food) might not be ideal for a truly sustainable world. Solutions based on heterodox marketing may only buy a little more time. But it is possible that shifting our way of thinking about marketing in the direction of networks rather than atomised atemporal entities such as commercial firms might open up solutions that are closer to a sustainable ideal.

From a network perspective, in Aldersonian terms, policy should aim to create a society capable of maintaining the conditions for dynamic ecological equilibrium. A dynamic ecological equilibrium is one where technology is used to advance improvements in the lives of a population but without destroying the long term habitability of the environment. Markets, marketing and market failure need to be understood within a framework of dynamic ecological equilibrium. This perspective 'offers criteria for marketing performance which transcend the limited measures of economic efficiency' (Alderson in Cox et al., 1964, p. 94). A network approach may not yield a perfectly sustainable society but it might help us move towards a more nuanced understanding of the interconnectedness of the processes involved in creating a society capable of sustaining a desired standard of living.

*Appendix 1: Supplies of vegetables in the UK - Home Produce Marketed (HPM 000s tonnes)*

The vegetable sector in the UK is diverse. The sector is classified into field vegetables and protected edibles. Field vegetables are further classified into roots and onions (including carrots); legumes (peas and beans); and brassicas; and others. The chart below provides a summary of the home produce marketed by weight. With the exception of a few categories: carrots, onions and asparagus for example, most sectors have declined in volume terms since the mid-1980s.

Source of data: (DEFRA, 2014b) 2013 data are provisional.



Appendix2 Table 3: List of Participants

ID Code	Description
Gr01	Conventional network Medium/large mixed traditional farm, field and protected crops, East Anglia Model farm, professional manager but conservation also an important concern Main supply network avoids retailers
Gr02	Pioneer network Organic grower mainly protected crops, East Anglia Entrepreneurial young owner family farm but branched out into downstream supply Alternative supply network through traditional/farmers' markets
Gr03	Pioneer network Organic producer/lifestyle farmer field and protected crops, West Country Small farm, experience of food cooperatives, runs market stall as outlet for produce
Gr04	Pioneer network Medium/large organic grower/supplier field and protected crops, Successful box scheme, main location is West Country but also overseas
Gr05	Conventional network Young owner farmer third generation family farm, South East, sustainability champion Field scale vegetables, serving mainly ethnic wholesale foodservice markets
Gr06	Conventional network Semi-retired, traditional family medium sized farm Field scale vegetables, Eastern England
Gr07	Pioneer network Organic grower (not certified), West Country Very small niche producer (chillies) supplements income from farm, part time, lifestyle choice Serves farmers' markets and some food producers
Gr08	Conventional network Grower owner (retired) with some consultancy experience, small/medium sized farm, South East Formerly a mixed farm, most recently focused on specialist vegetable production for catering trade
GP01	Conventional network Grower/supplier of field and protected crops, based in South East Crop technical manager for large GPMO, focal supplier for retail multiples
GP02	Conventional network Supplier of field and protected crops based in South East Business Development Director for large GPMO, focal supplier for retail multiples
Con01	Conventional network Consultant/agronomist, experience of UK and overseas production Knowledge of large scale production and mainstream supply networks
Con02	Knowledge of conventional and pioneer networks Senior representative from LEAF, grower environmental standards body Broad knowledge of vegetable sector across England, conventional and organic production
Con03	Re-classified as Pol04
Con04	Pioneer network Aligned to organic or non-conventional approach to production, South East Grower consultant and writer, sustainability champion
Rep01	Experience of both conventional and pioneer networks Representative from Tomato Growers Association - mainly protected crops Knowledge of both conventional and organic production
Rep02	Mainly conventional affiliation Representative from CLA (Country Land Association) Rural business focus, traditional farming
Rep03	Mainly conventional affiliation Representative from CLA Rural business focus, traditional farming
Rep04	Conventional network affiliation Representative of British Growers Association (Senior manager) broad knowledge across field scale and protected crops
Rep05	Conventional affiliation Representative from FPC (Fresh Produce Consortium) Broad knowledge of the supply network,
Rep06	Conventional network affiliation Representative of British Growers Association (Chair) Conventional affiliation, broad knowledge of field scale and protected crops Also successful niche grower (asparagus, sprouts), based in North, farming background
Pol01	Conventional network Also a grower traditional family farm, Eastern England

	Medium/large traditional mixed farm field scale vegetables and other crops Member of the Policy Commission on the Future of Farming and Food Had been involved at a senior level in a farmer representative organisation
<b>Pol02</b>	Mainly experience of conventional networks Representative from Defra, senior role Extensive knowledge of horticulture across both field and protected crops
<b>Pol03</b>	Mainly experience of conventional networks Representative from Defra, middle manager role Extensive knowledge of horticulture across both field and protected crops
<b>Pol04</b> (originally Con03)	Pioneer network affiliation Writer on food and agriculture (semi-retired) Former member of Agriculture and Food Research Council A critical voice in the policy discourse

**Key:** Gr = grower/farmer; GP = grower/packer marketing organisation, involved in home and overseas production; Con = grower consultant, involved in advisory role to growers (e.g. agronomist); Rep = grower representative, crop association or farmer association; Pol = policy expert (e.g. Defra horticulture specialists)

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